What is claimed is:

1.   A method of processing a semiconductor wafer having a plurality of epitaxial layers, including a P-side cladding layer adjacent to a waveguide layer, so as to create
5   a distributed Bragg reflecting (DBR) grating in a defined window area without creating a distributed feedback (DFB) grating over the remainder of the wafer, comprising the steps of:
          depositing a protective layer over said wafer;
          removing said protective layer over a portion of said cladding layer to define a
10   window in an area of said wafer having negligible optical gain;
          applying a photoresist over said wafer including said window area;
          exposing said entire photoresist to interfering laser beams to create a grating pattern in said photoresist;
          transferring said grating pattern into said cladding layer at said window area;
15   and
          removing the remainder of said protective coating prior to depositing additional layers of said wafer

2.   The method of claim 1 wherein said protective layer is selected from the group
20   consisting of SiO2, Si$_3$N$_4$ and a metal.

3.   The method of claim 1 wherein said photoresist is removed prior to transferring said grating pattern into said cladding layer.

25   4.   The method of claim 3 wherein a photoresist is exposed to said interfering laser holography beams provided from an argon laser.

5.   The method of claim 4 wherein argon laser is operated at a wavelength of 458 nm.
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6.   The method of claim 5 wherein after said photoresist is removed using an etchant selected from the group consisting of SF_6, CCl_2F_2, $CClF_3$ and CF_4.

7.   The method of claim 6 wherein after said photoresist is removed, a wet etchant selected from the group consisting of $SiCl_4$ or BCl_3 is used to transfer said pattern into said cladding layer.

8.   The method of claim 1 wherein said protective layer has a refractive index - different than the refractive index of said photoresist to cancel said interfering laser beams over said protective layer.

9.   The method of claim 1 wherein said additional layers include gain layers beyond said window area.

10.   The method of claim 1 wherein said additional layers include non-gain layers over said window area.